

CLAIMS

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5 1. An apparatus for monitoring at least a part of an animal related space, comprising a controllable device (2, 22) and at least one image capturing device (14, 15) for generating and supplying captured image data regarding said animal related space,

characterised in that:

- 10 - said image capturing device (14, 15) is associated with a communications port (24) connectible to a telecommunications network (26);
- a remote control device (28) is associated with a further communications port (30) connectible to said telecommunications network (26);
- said image capturing device (14, 15) is connectible to said remote control device (28) via said telecommunications network (26);
- 15 - said remote control device (28) is adapted to receive said captured image data;
- said remote control device (28) is associated with a display unit (32) for allowing viewing of said captured image data;
- a data input means (34) is associated with said remote control device (28), for entering a control instruction;
- 20 - said remote control device (28) is adapted to output said control instruction via said further communications port (30); and,
- said controllable device (2, 22) is arranged to be interactively manipulated by said remote control device (28) in response to said control instruction.

25 2. An apparatus for monitoring at least a part of an animal related space, comprising a controllable device (2, 22), and at least one image capturing device (14, 15) for generating and supplying captured image data regarding said animal related space, characterised in that:

- 30 - said image capturing device (14, 15) is associated with a communications port (24) connectible to a telecommunications network (26), for association of said image capturing device (14, 15) with a remote control device (28) connectible to said telecommunications network and adapted to receive said captured image data.

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3. An apparatus according to claim 1 ~~or 2~~, wherein said controllable device (2, 22) is associated with said communications port (24).

4. An apparatus according to ~~anyone of claims 1 to 3~~ wherein a control means (16) is provided between said controllable device (2, 22) and said communications port (24), said controllable device (2, 22) being automatically controlled by said control means (16).

5. An apparatus according to claim 4, wherein said control means (16) is provided between said image capturing device (14, 15) and said communications port (24), said image capturing device being automatically controllable by said control means.

6. An apparatus according to claim 4 ~~or 5~~, wherein a switch means (36) is provided for allowing by-pass of said control means (16).

7. An apparatus according to claim 4 ~~or 5~~, wherein said control means (16) is switchable to a remote control mode for receiving said control instruction from said remote control device, said controllable device being adapted to perform an operation in response to said remote control device via said control means.

8. An apparatus according to ^{claim 4} ~~anyone of claims 4 to 7~~, wherein either of said remote control device (28) and said control means (16) is adapted to generate an alerting signal if an abnormal situation is established.

9. An apparatus according to ^{claim 1} ~~anyone of the preceding claims~~, wherein said animal related space (18) comprises an animal space provided with said controllable device (2, 22).

a 10. An apparatus according to ~~anyone of the preceding claims~~ ^{claim 1,} wherein said animal related space (18) comprises an animal gateway provided with said controllable device (2, 22).

a 5 11. An apparatus according to ~~anyone of the preceding claims~~ ^{claim 1,} wherein said controllable device (2, 22) comprises an openable and closeable gate, a position of said gate is established by said image capturing device (15).

a 10 12. An apparatus according to ~~anyone of the preceding claims~~ ^{claim 1,} wherein said controllable device comprises a movable robot arm (4) provided with a gripper (6).

13. An apparatus according to claim 12, wherein said image capturing device (14) is arranged on said robot arm (4).

a 15 14. An apparatus according to claims 13, wherein a position of a teat of an animal is established by said image capturing device (14), for allowing attachment of a teatcup on said teat.

a 20 15. An apparatus according to ~~anyone of the preceding claims~~ ^{claim 1,} wherein it further comprises a milking equipment provided with at least one teatcup (8) associated with a pulsator (12), adapted to be controlled by said remote control device (28).

a 25 16. An apparatus according to claim 14 ~~or 15~~, wherein said teatcup is associated with a vacuum source (10) via a valve (9), said valve being adapted to be operated in response to said remote control device (28).

a 30 17. An apparatus according to ~~anyone of the preceding claims~~ ^{claim 1,} wherein said controllable device comprises a driving means (15a) with a turnable axle connectible to said image capturing device (15).

claim 1
18. An apparatus according to ~~anyone of the preceding claims~~, wherein said controllable device comprises a driving means (15c) for a zoom lens (15b) arranged on said image capturing device (15).

claim 1
19. An apparatus according to ~~anyone of the preceding claims~~, wherein analysis of an image captured by said image capture device is performed by said control means (16, 17, 23).

claim 1
20. An apparatus according to ~~anyone of the preceding claims~~, wherein analysis of an image captured by said image capture device is performed by said remote control device (28).

claim 1
21. An apparatus according to ~~anyone of the preceding claims~~, wherein said remote control device (28) is provided with a display unit (32) for allowing viewing of said captured image data, and wherein a data input means (34) is associated with said remote control device (28), for entering a control instruction.

claim 1
22. An apparatus according to ~~anyone of the preceding claims~~, wherein said control means (16) is provided with a display unit for allowing viewing of said captured image data, and wherein a data input means is associated with said control unit (16), for entering a control instruction.

claim 1
23. An apparatus according to ~~any of the previous claims~~ wherein said remote control device (28) comprises a microphone and/or loudspeaker.

claim 1
24. An apparatus according to ~~any of the previous claims~~ wherein said animal related space comprises a microphone and/or loudspeaker.

claim 1
25. An apparatus according to ~~any of the previous claims~~ wherein said display unit (32) can display an image of an animal wherein said image is captured by an image capturing device (14, 15).

26. A remote control device (28) adapted to receive captured image data comprising a communications port (30), via which said control instruction is to be output, for interactively manipulating a controllable device (2, 22) of the apparatus according to any of the claims ~~1 to 25~~.

27. A method of monitoring at least a part of an animal related space, comprising a controllable device (2, 22) and at least one image capturing device (14, 15) for generating and supplying captured image data regarding said animal related space, characterised by:

- connecting said image capturing device (14, 15) to a communications port (24) for allowing connection to a telecommunications network (26);
 - connecting a remote control device (28) to a further communications port (30) for allowing connection to said telecommunications network (26);
 - adapting said remote control device (28) to receive said captured image data;
 - providing said remote control device (28) with a display unit (32);
 - entering a control instruction in a data input means (34) associated with said remote control device (28);
 - transmitting said control instruction via said further communications port (30);
- and,
- interactively manipulating said controllable device (2, 22) by said remote control device (28) in response to said control instruction.

28. A method according to claim 27, including associating said controllable device (2, 22) with said communications port (24).

29. A method according to claim 27 ~~or 28~~, including automatically controlling said controllable device (2, 22) by means of a control means (16) provided between said controllable device (2, 22) and said communications port (24).

30. A method according to claim 29, including automatically controlling said image capturing device (14, 15) by means of said control means (16), provided between said image capturing device and said communications port (24).

31. A method according to claim 29 *or 30*, including by-passing said control means (16) by means of a switch means (36).

32. A method according to claim 29 *or 30*, including:

- switching said control means (16) to a remote control mode;
 - allowing said control means (16) to receive said control instruction from said remote control device (28);
- performing an operation in response to said remote control device (28) via said control means (16).

33. A method according to *claim 29*, ~~anyone of claims 29 to 32~~, including generating an alerting signal if either of said control means (16) and said remote control device (28) establishes an abnormal situation.

34. A method according to *claim 29*, ~~anyone of claims 29 to 32~~, including performing image analysis by means of said control means (16) of an image captured by said image capture device (14, 15).

35. A method according to *claim 29*, ~~anyone of claims 29 to 34~~, including viewing said captured image data in a display unit (16a) associated with said control means (16), and entering a control instruction in a data input means (16b) associated with said control means (16).

36. A method according to *claim 29*, ~~anyone of claims 29 to 35~~, including performing image analysis by means of said remote control device (28) of an image captured by said image capture device (14, 15).

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37. A method according to ~~any one of claims 29 to 36~~, *claim 29*, including viewing said captured image data in a display unit (32) associated with said remote control device (28), and entering a control instruction in a data input means (32) associated with said remote control device (28).

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38. A method according to ~~any of claims 27-37~~, *claim 27*, including the steps of: directing at least one image capturing device (14, 15) towards an animal in said animal related space and capturing an image of said animal.

39. A method according to claim 38 including the steps of: analysing said image by said control unit (16) or remote control means (28); automatically determining appropriate control action by said control unit (16) or remote control means (28); and performing said control action under the control of a control program in said control unit (16) or said remote control means (28).

40. A method according to claim 38 including the step of: displaying said image of said animal on at least one said display unit (32).

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